**preliminary Area of Interest (pAoI)**

**Submission Form**

INSTRUCTIONS

The following form should be used to submit a nomination for an Important Shark and Ray Area (ISRA) preliminary Area of Interest (pAoI).

A pAoI is an area proposed for consideration during an ISRA regional workshop. The aim of an ISRA workshop is to undertake a critical evaluation of proposed pAoIs, explore the scientific information basis for proposing these areas, and determine which areas can become candidate ISRAs (cISRAs).

If available evidence supports the application of the [ISRA Criteria](https://sharkrayareas.org/isra/selection-criteria), the pAoI will move to cISRA status during the regional workshop.

When submitting a pAoI, we encourage you to provide clear information that supports the Criteria. Complete and accurate submissions are more likely to be successful if the ISRA Criteria are well justified. Please note that areas delineated need to be based on contemporary importance. **Information from the last 15 years is considered contemporary***.*

The following resources should be consulted when preparing a pAoI submission form:

* [*ISRA Guidance on Criteria Application*](https://drive.google.com/file/d/1Jl2sQuV1Nmj2uSVj_8qNr5Q00Q0Fk3bK/view?usp=share_link)
* [*ISRA Style Guidelines*](https://drive.google.com/file/d/1F-HTKA86KUT_WXMIWSZoVaKCS6ADD_XT/view?usp=share_link)

This form is divided into eight sections to allow for details on the following to be provided:

(1) general information on contributors and details of the proposed area

(2) information on species that occur within the area;

(3) details on ISRA Criteria being applied. ***This is a key section of the proposal. Please make sure the information you have for the area and the Qualifying Species is enough to support this submission****;*

(4) polygon highlighting the area boundaries;

(5) details of the habitat in the proposed area;

(6) broad summary/abstract of the area being proposed;

(7) supporting information (optional); and

(8) references.

Instructions on how to complete each section are provided below and in the *ISRA Style Guidelines*. Ensure all relevant sections are completed.

Note: The term ‘shark’ is used here to encompass all living chondrichthyans (sharks, rays, and chimaeras).

Please carefully follow the *ISRA Style Guidelines* when completing this form. Information entered in this document may be included in various ISRA products including the ISRA website, e-Atlas, and ISRA Factsheets.

If you encounter any difficulties completing this form, please [contact us](mailto:submissions@sharkrayareas.org)

SECTION 1 – SUMMARY

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| **1.1 Points of Contact**  *List all persons involved in the preparation of this submission. We encourage submissions from consortia to strengthen the submission through varied knowledge and experience.*  *Note that names and affiliations will be published on ISRA products.* | |
| **Full Name**  *For multiple names, enter each on a separate line, separated by semicolons and include abbreviations, e.g.,*  *Rima W. Jabado (RWJ);*  *Daniel Fernando (DF).* | Alexandra E. DiGiacomo (AED);  Salvador Jorgensen (SJ);  Sammy Andrzejaczek (SA);  Evan Byrnes (EB);  Barbara A. Block (BAB) |
| **Affiliation**  *For multiple organisations, enter each on a separate line, separated by semicolons AND provide affiliated author(s) in brackets, e.g.,*  *Elasmo Project (RWJ);*  *Blue Resources Trust (DF);*  *IUCN SSC SSG (RWJ; DF).* | Stanford University (AED; SA; BAB); California State University, Monterey Bay (SJ) |
| **Email**  *For multiple emails, enter each on a separate line, separated by semicolons AND provide affiliated author(s) in brackets, e.g.,*  *rimajabado@.......com (RWJ);*  *daniel@........org (DF).* | [alexandra.digiacomo@stanford.edu](mailto:alexandra.digiacomo@stanford.edu) (AED);  [sajorgensen@csumb.edu](mailto:sajorgensen@csumb.edu) (SJ);  [sammyaz@stanford.edu](mailto:sammyaz@stanford.edu) (SA);  [eebyrnes@stanford.edu](mailto:eebyrnes@stanford.edu) (EB);  [bblock@stanford.edu](mailto:bblock@stanford.edu) (BAB) |

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| **1.2 pAoI Name** Character limit: 40 characters  *Provide a short, descriptive, geographically identifiable name for the pAoI. Avoid generalised and easily confused names such as ‘Eastern Pacific ISRA’ but rather use a name that refers to distinctive features that best represent the uniqueness and importance of the area.* |
| Marina |

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| **1.3 Geopolitical Details** Word limit: 20 words  *Provide the name of jurisdictions (e.g., country, state, province, department) that the pAoI falls in. If the pAoI spans multiple jurisdictions (e.g., a migratory corridor) please list all jurisdictions.*  *If the pAoI is in international waters, indicate that the pAoI is in Areas Beyond National Jurisdiction (ABNJ).* |
| United States of America, California, Monterey County |

SECTION 2 – THE SPECIES

**2.1 ISRA Qualifying Species and Qualifying Criteria**

*Provide a complete list of Qualifying Species (*in alphabetical order by scientific name*) occurring in the pAoI and the ISRA Criteria/Sub-criteria that they meet. Each species listed in Section 2 as meeting ISRA criteria should be detailed here. Qualifying Species satisfy one or more of the ISRA Criteria within the area. Do not include species that occurred historically but that no longer occur, or vagrants that do not normally occur in the area.*

*Insert and delete rows as needed.*

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| **Scientific Name1** | **Common Name1** | **IUCN Red List Category2** | **Global Depth Range (m)1** | **ISRA Criteria/Sub-criteria Met (mark with an ‘X’)** | | | | | | | | |
| **A** | **B** | **C1** | **C2** | **C3** | **C4** | **C5** | **D1** | **D2** |
| **SHARKS** |  | | | | | | | | | | |  |
| *Carcharodon carcharias* | White shark | VU | 0-1277 | X |  |  |  |  |  | X |  |

**2.2 Supporting Species**

*Provide a complete list of Supporting Species (in alphabetical order by scientific name) occurring in the pAoI. Supporting Species are present in the area, but they do not satisfy ISRA Criteria. Do not include species that occurred historically but that no longer occur, or vagrants that do not normally occur in the area.*

*Insert and delete rows as needed.*

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| **Scientific Name1** | **Common Name1** | **IUCN Red List Category2** |
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*1Species names and depth ranges should follow the regional species list/Inventory of Knowledge; the inclusion of any additional species that are not on the regional list must be supported by information (e.g., references, photos) to allow verification of their presence at the site; any invalid species names/concepts may be changed by the ISRA team to reflect current accepted taxonomy.*

*2IUCN Red List of Threatened Species categories are provided in the Inventory of Knowledge or are available by searching species names at* [*www.iucnredlist.org*](http://www.iucnredlist.org) *Use abbreviations as follows: CR, Critically Endangered; EN, Endangered; VU, Vulnerable; NT, Near Threatened; LC, Least Concern; DD, Data Deficient; NE, Not Evaluated.*

SECTION 3 – THE CRITERIA

*Each field below is* ***only required if the area meets the ISRA Criteria/Sub-criteria.***

*Provide justifications on how the ISRA Criteria/Sub-criteria are met for each species.*

*Provide citations to supporting information and include the references in Section 8 of this form.*

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| **3.1 Criterion A – Vulnerability** Word limit: 200 words  *Areas important to the persistence and recovery of threatened sharks (****this criterion must be associated with an additional criterion describing the type of usage of the area by the species****).*  *Threatened species are those that fall in the IUCN Red List categories Critically Endangered, Endangered, or Vulnerable, or those that have been evaluated as threatened under a national extinction risk assessment framework.*  *Provide a summary of threatened species occurring in the pAoI.* |
| One Qualifying Species considered threatened with extinction according to the IUCN Red List of Threatened Species regularly occurs in the area. This is the Vulnerable White Shark *Carcharodon carcharias* (Rigby *et al.*, 2019). |

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| **3.2 Criterion B – Range Restricted** Word limit: 100 words  *Areas containing a regular and/or predictable presence of range-restricted sharks which are occupied year-round or seasonally.*  *Under Criterion B, range-restricted sharks are defined as species whose distribution is entirely limited to one Large Marine Ecosystem (LME) or two adjoining LMEs. For each Qualifying Species listed under Criterion B, specify which LME(s) they are restricted to, or note if the pAoI falls outside LMEs (which do not cover all global waters).*  *The list of species that can meet the Range Restricted criterion can be found in the regional ‘Inventory of Knowledge: Geographic Ranges of Sharks, Rays and Chimaeras’ document.* |
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| **3.3 Criterion C – Life-History** Word limit: 100 words per species per sub-criterion |
| *Provide information on what activities Qualifying Species are undertaking in the area that meet the relevant sub-criterion.* |
| **3.3.1 Sub-criterion C1 – Reproductive Areas**  *Areas important for sharks to mate, give birth, lay eggs, or provide advantage to the young, and which support sharks at various lifecycle stages.* |
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| **3.3.2 Sub-criterion C2 – Feeding Areas**  *Areas that are important for shark nutrition at one or more lifecycle stages.* |
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| **3.3.3 Sub-criterion C3 – Resting Areas**  *Areas that are important for sharks to rest and conserve energy, often related to environmental conditions or temporal factors.* |
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| **3.3.4 Sub-criterion C4 – Movement**  *Areas used by sharks regularly or predictably during movement, such as migrations, which contribute to connectivity of important areas.* |
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| **3.3.5 Sub-criterion C5 – Undefined Aggregations**  *Areas where an assemblage or aggregation of sharks regularly and/or predictably occur, year-round or seasonally, which can be undefined but likely linked to a vital function or life-history activity.* |
| The area in the boundaries we propose has recently been noted as a regular aggregation site in the late boreal summer (July-September) for juvenile white sharks (DiGiacomo *et al.*, 2025, 2026). Research groups at Stanford University and California State University Monterey Bay (CSUMB) have deployed electronic tags and imaging systems to establish the seasonality of this aggregation, but the drivers of utilization are yet to be understood. Researchers have identified white sharks in this predictable aggregation site from 2023-2025 and defined the age composition to be primarily large juvenile white sharks and small sub-adults (59.4% Juvenile, 36.2% Sub-adult, 4.3% Adult, n=69) via drone-based length measurements (DiGiacomo *et al.*, 2026). Additionally, multi-year acoustic transmitters and repeated field sampling from 2023-2025 demonstrate that activity in this area is concentrated between July and September (DiGiacomo *et al.*, 2026; Block, unpublished data). |

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| **3.4 Special Attributes** Word limit: 400 words for each Sub-criterion |
| **3.4.1 Sub-criterion D1 – Distinctiveness**  *Areas with sharks which are biologically, behaviourally, or ecologically distinct.*  *Provide details of distinct or unique biological, behavioural, or ecological characteristics displayed by Qualifying Species in the pAoI.* |
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| **3.4.2 Sub-criterion D2 – Diversity**  *Areas that sustain an important diversity of sharks.*  *The threshold number of species for the attribution of Sub-criterion D2 is dynamic and is set independently for each ISRA region. It is specified in the regional ‘Inventory of Knowledge: Geographic Ranges of Sharks, Rays and Chimaeras’ document.*  *Provide the number of ISRA Qualifying Species known to occur in the pAoI if D2 is met.* |
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SECTION 4 – AREA POLYGON

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| **4.1 Area Polygon**  *Provide a polygon delineating the area boundaries; preferred tools are Google Earth or QGIS.* |
| A map of a beach  AI-generated content may be incorrect. |
| **4.2 Boundary Delineation**  *Describe how the boundaries were defined including depth-contours, continental shelf limits, canyons, seamounts, coastal features (e.g., estuaries, river mouths), etc.* |
| The polygon was delineated by the borders of the coastline to the east, and a fixed ~1km buffer to the west. The northern border is defined just south of the Salinas River mouth and the southern border is defined at the southern end of Fort Ord Dunes State Park. |

SECTION 5 – THE AREA

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| **5.1 Habitat** Word limit: 400 words  *Provide a description of the location, geography, oceanography, biological processes, and habitat features of the area.*  *Include static, spatially bound, habitat and/or environmental conditions, including the geographical extent of habitat features (e.g., continental shelves, continental slopes, seamounts, coral reefs, seagrass beds, mangrove forests, estuaries, rivers), and dynamic habitat and/or non-permanent environmental conditions, including the regular and/or predictable occurrence of fronts and eddies, upwellings, and prey aggregations (including spawning events).*  *Information related to fisheries, threatening processes, or the importance of the area for any species (shark or other taxa) should not be included here.* |
| Please do not complete this section until someone from the ISRA team has confirmed that there is enough information for this proposal to be considered. |

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| **5.2 Area-based Management** Word limit: 50 words  *Specify the full name of any spatial management delineations that overlap with the area.*  *This may include protected areas,* *Key Biodiversity Areas (KBAs), Ecologically or Biologically Significant Marine Areas (EBSAs), Wetlands of International Importance (Ramsar Sites) or other relevant designations.* |
| This area lies in the Monterey Bay National Marine Sanctuary. |

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| **5.3 Bathymetry** Word limit: 50 words  *Provide the bathymetry of the area, noting the upper and lower depths in metres, along with a justification for the chosen depth range.*  *Add whether the area encompasses benthic, benthopelagic, or pelagic habitats. Note whether the area is subsurface (e.g., a subsurface pAoI might have a depth range of 200–600 m).* |
| This Important Shark and Ray Area is benthic and pelagic and is delineated from inshore and surface waters (0 m) to 15 m based on the bathymetry of the area. |

SECTION 6 – SUMMARY / ABSTRACT

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| **pAoI Summary** Word limit: 200 words  *Provide an abstract-style summary of the pAoI. This should include the geographical location of the pAoI, an overview of key habitat features, overlap with other key area-based management approaches (e.g., protected areas, Key Biodiversity Areas), and a summary of the ISRA Criteria/Sub-criteria that are met with an example species for each.*  *Include both common names and scientific names of species in this section.*  *Examples are provided in the ISRA Style Guidelines.* |
| Please do not complete this section until someone from the ISRA team has confirmed that there is enough information for this proposal to be considered. |

SECTION 7 – SUPPORTING INFORMATION

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| *Provide any additional supporting information along with sources and captions. This could include information taken from the grey literature or unpublished sources including any relevant figures, distribution maps, sighting locations, data tables, graphs, images, or other material which supports the pAoI submission.*  *This could also include information on species likely meeting one of the Criteria in the area but for which insufficient information is currently available.*  *Make sure to provide sources for any included material and include the references in Section 8 of this form.* |
| A map with graphs and diagrams  AI-generated content may be incorrect.  **Figure S1.** Aerial drone measurement data collected from 2022-2025. (A) Map of Monterey Bay National Marine Sanctuary (MBNMS), denoting sites Año Nuevo (AN), New Brighton (NB), and Marina (MB). (B) Distributions of total length across the three different sites using all individuals (n=163) (DiGiacomo *et al.*, 2026).   |  |  | | --- | --- | | **Age class** | **n** | | Young-of-the-Year | 0 | | Juvenile | 41 | | Sub-adult | 25 | | Adult | 3 |   **Table S1.** Age class representation at Marina using drone-derived measurements collected from 2022-2024. Age class determined by sex-dependent length cutoffs (YOY: <175cm TL; Juvenile: <300cm TL; Sub-adult: 300-360cm TL (M), 300-450cm TL (F), 300-405cm TL (U); Adult: >360cm TL (M), >450cm TL (F), >405cm TL (U)). where cell numbers indicate (n) (DiGiacomo *et al.*, 2026).  A shark swimming in the water  AI-generated content may be incorrect.  **A couple of sharks swimming in the water  AI-generated content may be incorrect.Figure S2.** Imagery of aggregating white sharks in the proposed area (Marina, CA) on 02 September 2024 (top) and 27 August 2025 (bottom) (Block, unpublished data).  A screenshot of a graph  AI-generated content may be incorrect.  **Figure S3.** Abacus plot of acoustic receiver detections of white sharks in the proposed region (Marina State Beach) from September 2024 – April 2025 (Block, unpublished data).  A graph with blue dots  AI-generated content may be incorrect.  **Figure S4**. Summer aggregation events at Marina per ISRA-generated code. Aggregation events are defined as the presence of 3+ unique white sharks at a given receiver within the same 5-minute window. Receiver active from September 2024-April 2025. N=10 total events.   |  |  |  |  | | --- | --- | --- | --- | | **year** | **mean # sharks observed** | **standard deviation** | **n surveys** | | 2023 | 3.710145 | 2.578768 | 15 | | 2024 | 7.289474 | 6.030624 | 11 | | 2025 | 3.147541 | 2.088349 | 15 |   **Table S2.** Summary statistics per field day derived from Block Lab white shark Fin-ID database. Mean # of sharks observed represents the unique # of individual white sharks identified during a field effort (day). Individuals were identified via underwater video and dorsal Fin-ID. These represent data from field efforts in which at least one individual was observed. |

SECTION 8 – REFERENCES

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| *Provide a reference for all material cited in this submission. These can include the primary literature (i.e., scientific papers), reports, books, book chapters, theses, webpages, and databases.*  *Carefully follow the* [*ISRA Citation Style Guide*](https://drive.google.com/file/d/1F-HTKA86KUT_WXMIWSZoVaKCS6ADD_XT/view?usp=share_link)*.* |
| **Block, unpublished data**. Block Lab, Unpublished Acoustic Telemetry Data.  **DiGiacomo AE, Abraham AM, Block BA**. **2025**. Non-invasive extraction of white shark swimming kinematics from unoccupied aircraft system (UAS) imagery. *Wildlife Research* 52.  **DiGiacomo AE, Andrzejaczek S, Block BA**. **2026**. Ontogenetic shifts in morphology and ecology of eastern Pacific white sharks revealed by computer vision analysis (in review at PLOS One).  **Rigby C, Barreto R, Carlson J, Fernando D, Fordham S, Francis MP, Jabado RW, Liu KM, Marshall A, Pacoureau N**. **2019**. White shark (Carcharodon carcharias). *IUCN Red List of Threatened Species E. T3855A2878674* 3. |

**SUBMISSION**

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| *Complete your submission by sending this form together with the polygon GIS file (as a shape file with all its auxiliary files, or KML file), to* [*Dr Emiliano Garcia-Rodriguez*](mailto:submissions@sharkrayareas.org)*. Rename the form using the pAoI name, e.g., pAoI submission\_Coiba Island* |